

What is claimed is:

1. A recording medium comprising:

a data area in which

a first data arrangement containing a plurality of  
5 video data cells in each of which video data has been  
stored and

first management information table that is for  
managing said first data arrangement and includes first  
cell playback information specifying the playback order  
10 of video data cells in said first data arrangement and  
first content information on the contents of said first  
data arrangement, have been recorded.

2. A recording medium according to claim 1,  
wherein said data area has a second data arrangement  
15 containing a plurality of cells in each of which video  
data has been stored and second management information  
that is for managing said second data arrangement and  
includes second cell playback information specifying  
the playback order of video data cells in said second  
20 data arrangement and second content information on the  
contents of said second data arrangement, recorded  
therein.

3. A recording medium according to claim 2,  
wherein said first and second content informations  
25 include the presence or absence of data arrangements to  
which said first and second data arrangements are to be  
concatenated as well as the numbers of data

arrangements at concatenating destinations.

4. A recording medium according to claim 2,  
wherein said data area has a third data arrangement  
containing a plurality of cells in each of which video  
data has been stored and third management information  
that is for managing said third data arrangement and  
includes third cell playback information specifying the  
playback order of video data cells in said third data  
arrangement and third content information on the  
contents of said third data arrangement, recorded  
therein.

5. A recording medium according to claim 4,  
wherein said first, second, and third content  
informations include the presence or absence of data  
arrangements to which said first, second, and third  
data arrangements are to be concatenated as well as the  
numbers of data arrangements at concatenating  
destinations.

6. A recording medium according to claim 1,  
wherein said first content information includes entry  
information as to whether or not said first data  
arrangement is to be reproduced first.

7. A recording medium according to claim 1,  
wherein said first content information includes the  
number of cell data items in said first data  
arrangement.

8. A recording medium according to claim 1,

wherein said video data cells include video data packs for reproducing images, audio data packs for reproducing audio, and sub-picture data packs for reproducing sub-pictures, the audio data packs containing one or more audio streams that are identified by audio stream numbers and can be reproduced selectively, and the sub-picture data packs containing sub-picture streams that are identified by sub-picture stream numbers and can be reproduced selectively.

9. A recording medium according to claim 1, wherein said first content information includes selectable audio stream numbers and selectable sub-picture stream numbers.

10. A recording medium according to claim 1, wherein said first content information includes the presence or absence of repetitive playback of the corresponding first data arrangement and the number of playbacks to be repeated.

11. A recording medium according to claim 1, wherein said first content information includes information as to whether or not the reproduced state is forced to remain stationary after the corresponding first data arrangement has been reproduced and, if the state is made stationary, further information on the duration of the stationary state.

12. A recording medium according to claim 1,

wherein said first management information table includes precommand information in which the processing related to the playback has been written before the playback of the corresponding first data arrangement.

5           13. A recording medium according to claim 1, wherein said first management information table includes postcommand information in which the processing related to the playback has been written after the playback of the corresponding first data  
10 arrangement.

          14. A recording medium according to claim 13, wherein said postcommand information includes a command to change the processing according to an externally supplied input in the course of reproducing the  
15 corresponding first data arrangement.

          15. A recording medium according to claim 1, wherein said first management information table includes intercell command information in which a command process related to the playback has been  
20 written in the course of reproducing the corresponding first data arrangement, and said first cell playback information includes information that is written in the intercell command information after the completion of reproduction of a particular data cell and specifies  
25 a command process to be executed.

          16. A recording medium according to claim 1, wherein said video data cells include video data packs

for reproducing images, audio data packs for reproducing audio, and sub-picture data packs for reproducing sub-pictures, and items that the user can choose are reproduced from the sub-picture data packs.

5           17. A recording medium according to claim 1, wherein said first cell playback information includes the start address of the first data cell in said first data arrangement in said data area.

10           18. A recording medium according to claim 1, wherein said first cell playback information includes the start address of the last data cell in said first data arrangement in said data area.

15           19. A recording medium according to claim 1, wherein said data area further has search information for searching for said first management information table recorded therein.

20           20. A recording medium according to claim 1, wherein said data area further has menu information for choosing said first data arrangement recorded therein.

25           21. A method of reproducing video data cells from a recording medium having a data area in which a first data arrangement containing a plurality of video data cells in each of which video data has been stored and first management information table that is for managing said first data arrangement and includes first cell playback information specifying the playback order of video data cells in said first data arrangement and

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first content information on the contents of said first data arrangement, have been recorded, said method comprising the steps of:

5        acquiring said first content information and  
      setting a playback state according to the first content information; and

      acquiring said first cell playback information and reproducing video data cells according to the first cell playback information.

10        22. A method according to claim 21, wherein said data area has a second data arrangement containing a plurality of cells in each of which video data has been stored and second management information that is for managing said second data arrangement and includes  
15        second cell playback information specifying the playback order of video data cells in said second data arrangement and second content information on the contents of said second data arrangement, recorded therein.

20        23. A method according to claim 22, wherein said first and second content informations include the presence or absence of data arrangements to which said first and second data arrangements are to be concatenated as well as the numbers of data  
25        arrangements at concatenating destinations.

      24. A method according to claim 23, wherein when a data arrangement to be next concatenated is said

second data arrangement, said second content  
information is acquired and a playback state is set  
according to the second content information, and said  
second cell playback information is acquired and video  
5 data cells are reproduced according to the second cell  
playback information.

25. A method according to claim 22, wherein said  
data area has a third data arrangement containing  
a plurality of cells in each of which video data has  
10 been stored and third management information that is  
for managing said third data arrangement and includes  
third cell playback information specifying the playback  
order of video data cells in said third data  
arrangement and third content information on the  
15 contents of said third data arrangement, recorded  
therein.

26. A method according to claim 25, wherein said  
first, second, and third content informations include  
the presence or absence of data arrangements to which  
20 said first, second, and third data arrangements are to  
be concatenated and the numbers of data arrangements at  
concatenating destinations.

27. A method according to claim 26, wherein when  
a data arrangement to be next concatenated is one of  
25 said second and third data arrangements, the one's  
content information is acquired and a playback state is  
set according to the one's content information, and the

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32. A method according to claim 31, wherein the



setting step specifies an audio stream number and a sub-picture stream number that are to be chosen from the selectable audio stream numbers and the selectable sub-picture stream numbers, and the reproducing step includes the step of reproducing an audio stream number and a sub-picture stream according to the specified audio stream number and sub-picture stream number.

33. A method according to claim 21, wherein said first content information contains the presence or absence of repetitive playback of the corresponding first data arrangement and the number of playbacks to be repeated, and the reproducing step reproduces video data cells repeatedly according to the first content information.

34. A method according to claim 21, wherein said first content information includes information as to whether or not the reproduced state is forced to remain stationary after the corresponding first data arrangement has been reproduced and, if the state is made stationary, further information on the duration of the stationary state, and video data cells are reproduced in a stationary state according to the first content information.

35. A method according to claim 21, wherein said first management information table includes precommand information in which the processing related to the playback has been written before the playback of the

corresponding first data arrangement.

36. A method according to claim 35, wherein a precommand is executed in said setting step.

5 37. A method according to claim 21, wherein said first management information table includes postcommand information in which the processing related to the playback has been written after the playback of the corresponding first data arrangement.

10 38. A method according to claim 37, wherein a postcommand is executed in said setting step.

15 39. A method according to claim 21, wherein said postcommand information includes a command to change the processing according to an externally supplied input in the course of reproducing the corresponding first data arrangement.

40. A method according to claim 39, wherein a postcommand is executed in said setting step.

20 41. A method according to claim 21, wherein said first management information table includes intercell command information in which a command process related to the playback has been written in the course of reproducing the corresponding first data arrangement, and said first cell playback information includes information that is written in the intercell command  
25 information after the completion of reproduction of a particular data cell and specifies a command process to be executed.

42. A method according to claim 41, wherein an intercell command is executed in said reproducing step.

43. A method according to claim 21, wherein said video data cells include video data packs for reproducing images, audio data packs for reproducing audio, and sub-picture data packs for reproducing sub-pictures, and items that the user can choose are reproduced from the sub-picture data packs.

44. A method according to claim 43, wherein said reproducing step plays back sub-picture packs and thereby reproduces choices in the played-back picture.

45. A method according to claim 21, wherein said first cell playback information includes the start address of the first data cell in said first data arrangement in said data area.

46. A method according to claim 21, wherein said setting step includes the step of acquiring a data cell by reference to the start address of the first data cell.

47. A method according to claim 21, wherein said first cell playback information includes the start address of the last data cell in said first data arrangement in said data area.

48. A method according to claim 47, wherein said data area further has search information for searching for said first management information table recorded therein, and said setting step includes the step of

acquiring the search information and thereby obtaining said first management information table.

5        49. A method according to claim 21, wherein said data area further has menu information for choosing said first data arrangement recorded therein.

50. A method according to claim 49, further comprising the step of displaying a menu according to the menu information previous to said setting step.

10        51. An apparatus for reproducing video data cells from a recording medium having a data area in which a first data arrangement containing a plurality of video data cells in each of which video data has been stored and first management information table that is for managing said first data arrangement and includes  
15        first cell playback information specifying the playback order of video data cells in said first data arrangement and first content information on the contents of said first data arrangement, have been recorded, said apparatus comprising:

20        means for searching said recording medium for the first management information table and the first data arrangement;

      means for storing the read-out first management information table;

25        means for setting a playback state according to the first content information in the first management information table;

means for transferring video data cells in the first data arrangement according to the first cell playback information in the first management information table; and

5 means for converting the transferred video data cells into video signals.

52. An apparatus according to claim 51, wherein said data area has a second data arrangement containing a plurality of cells in each of which video data has  
10 been stored and second management information that is for managing said second data arrangement and includes second cell playback information specifying the playback order of video data cells in said second data arrangement and second content information on the  
15 contents of said second data arrangement, recorded therein.

53. An apparatus according to claim 52, wherein said first and second content information includes the presence or absence of data arrangements to which said  
20 first and second data arrangements are to be concatenated as well as the numbers of data arrangements at concatenating destinations.

54. An apparatus according to claim 53, wherein when a data arrangement to be next concatenated is said  
25 second data arrangement, said searching means searches for said second content information, said storing means stores the second content information, said setting

means sets a playback state according to the second content information, said transferring means transfers video data cells in said second data arrangement according to the second cell playback information in the second management information, and said converting means converts the video data cells according to the second cell playback information.

55. An apparatus according to claim 52, wherein said data area has a third data arrangement containing a plurality of cells in each of which video data has been stored and third management information that is for managing said third data arrangement and includes third cell playback information specifying the playback order of video data cells in said third data arrangement and third content information on the contents of said third data arrangement, recorded therein.

56. An apparatus according to claim 55, wherein said first, second, and third content informations include the presence or absence of data arrangements to which said first, second, and third data arrangements are to be concatenated as well as the numbers of data arrangements at concatenating destinations.

57. An apparatus according to claim 53, wherein when a data arrangement to be next concatenated is one of the second and third data arrangements, said searching means searches for the content information

corresponding to the one's data arrangement, said  
storing means stores the one's content information,  
said setting means sets a playback state according to  
the one's content information, said transferring means  
5 transfers video data cells in the second data  
arrangement according to the second cell playback  
information in the one's management information, and  
said converting means converts the video data cells  
according to the one's cell playback information.

10 58. An apparatus according to claim 51, wherein  
said first content information includes entry  
information as to whether or not said first data  
arrangement is to be reproduced first.

15 59. An apparatus according to claim 51, wherein  
said first content information includes the number of  
cell data items in said first data arrangement.

20 60. An apparatus according to claim 51, wherein  
said video data cells include video data packs for  
reproducing images, audio data packs for reproducing  
audio, and sub-picture data packs for reproducing  
sub-pictures, the audio data packs containing one or  
more audio streams that are identified by audio stream  
numbers and can be reproduced selectively, and the sub-  
picture data packs containing sub-picture streams that  
25 are identified by sub-picture stream numbers and can be  
reproduced selectively.

61. An apparatus according to claim 51, wherein

said first content information includes selectable audio stream numbers and selectable sub-picture stream numbers.

5 62. An apparatus according to claim 61, wherein said setting means specifies an audio stream number and a sub-picture stream number that are to be chosen from the selectable audio stream numbers and the selectable sub-picture stream numbers, and said converting means converts an audio stream number and a sub-picture stream according to the specified audio stream number and sub-picture stream number.

10 63. An apparatus according to claim 51, wherein said first content information includes the presence or absence of repetitive playback of the corresponding first data arrangement as well as the number of playbacks to be repeated, and said converting means converts video data cells repeatedly according to the first content information.

15 64. An apparatus according to claim 51, wherein said first content information includes information as to whether or not the reproduced state is forced to remain stationary after the corresponding first data arrangement has been reproduced and, if the state is made stationary, further information on the duration of the stationary state, and said converting means converts video data cells into playback signals of a stationary state according to the first content

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information.

65. An apparatus according to claim 51, wherein  
said first management information table includes  
precommand information in which the processing related  
to the playback has been written before the playback of  
the corresponding first data arrangement.

66. An apparatus according to claim 65, wherein  
said setting means executes a precommand.

67. An apparatus according to claim 51, wherein  
said first management information table includes  
postcommand information in which the processing related  
to the playback has been written after the playback of  
the corresponding first data arrangement.

68. An apparatus according to claim 67, wherein  
said setting means executes a postcommand.

69. An apparatus according to claim 51, wherein  
said postcommand information contains a command to  
change the processing according to an externally  
supplied input in the course of reproducing the  
corresponding first data arrangement.

70. An apparatus according to claim 69, wherein  
said setting means executes a postcommand.

71. An apparatus according to claim 51, wherein  
said first management information table includes  
intercell command information in which a command  
process related to the playback has been written in the  
course of reproducing the corresponding first data

arrangement, and said first cell playback information includes information that is written in the intercell command information after the completion of reproduction of a particular data cell and specifies a command process to be executed.

72. An apparatus according to claim 71, wherein said transferring means executes an intercell command.

73. An apparatus according to claim 51, wherein said video data cells include video data packs for reproducing images, audio data packs for reproducing audio, and sub-picture data packs for reproducing sub-pictures, and items that the user can choose are reproduced from the sub-picture data packs.

74. An apparatus according to claim 73, wherein said converting means converts sub-picture packs into video signals of choices.

75. An apparatus according to claim 51, wherein said first cell playback information includes the start address of the first data cell in said first data arrangement in said data area.

76. An apparatus according to claim 51, wherein said searching means searches for a data cell by reference to the start address of the first data cell.

77. An apparatus according to claim 51, wherein said first cell playback information includes the start address of the last data cell in said first data arrangement in said data area.

78. An apparatus according to claim 77, wherein said data area further has search information for searching for said first management information table recorded therein, and said searching means acquires the search information and thereby obtains said first management information table.

79. An apparatus according to claim 51, wherein said data area further has menu information for choosing said first data arrangement recorded therein.

80. An apparatus according to claim 79, wherein said converting means converts menu data into menu video signals according to the menu information.

81. A recording method comprising the steps of:  
creating a first data arrangement containing a plurality of video data cells in each of which video data has been stored;  
creating first management information table that is for managing said first data arrangement and includes first cell playback information specifying the playback order of video data cells in said first data arrangement and first content information on the contents of said first data arrangement; and  
recording the first management information table in a first segment area of the data area on a recording medium and the first data arrangement in a second segment area different from the first segment area of the data area on the recording medium.

82. A recording method according to claim 81,  
further comprising the steps of:

creating a second data arrangement containing a plurality of cells in each of which video data has been stored; and

creating second management information that is for managing said second data arrangement and includes second cell playback information specifying the playback order of video data cells in said second data arrangement and second content information on the contents of said second data arrangement, wherein

said recording step records not only the second management information along with the first management information table in the first segment area of the data area on the recording medium, but also the second data arrangement along with the first data arrangement in the second segment area different from the first segment area of the data area on the recording medium.

83. A recording method according to claim 82, wherein said first and second content informations include the presence or absence of data arrangements to which said first and second data arrangements are to be concatenated as well as the numbers of data arrangements at concatenating destinations.

84. A recording method according to claim 82,  
further comprising the steps of:

creating a third data arrangement containing

a plurality of cells in each of which video data has been stored; and

creating third management information that is for managing said third data arrangement and includes third cell playback information specifying the playback order of video data cells in said third data arrangement and third content information on the contents of said third data arrangement, wherein

said recording step records not only the third management information along with the first and second management informations in the first segment area of the data area on the recording medium, but also the third data arrangement along with the first and second data arrangements in the second segment area different from the first segment area of the data area on the recording medium.

85. A recording method according to claim 84, wherein said first, second, and third content informations include the presence or absence of data arrangements to which said first, second, and third data arrangements are to be concatenated as well as the numbers of data arrangements at concatenating destinations.

86. A recording method according to claim 81, wherein said first content information includes entry information as to whether or not said first data arrangement is to be reproduced first.

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95. A recording method according to claim 81, wherein said first management information table includes intercell command information in which a command process related to the playback has been written in the course of reproducing the corresponding first data arrangement, and said first cell playback information includes information that is written in the

96. A recording method according to claim 81, wherein said video data cells include video data packs for reproducing images, audio data packs for reproducing audio, and sub-picture data packs for reproducing sub-pictures, and items that the user can choose are reproduced from the sub-picture data packs.

97. A recording method according to claim 81,  
wherein said first cell playback information includes  
the start address of the first data cell in said first  
data arrangement in said data area.

98. A recording method according to claim 81, wherein said first cell playback information includes the start address of the last data cell in said first data arrangement in said data area.

99. A recording method according to claim 81, wherein said data area further has search information for searching for said first management information table recorded therein.

100. A recording method according to claim 81,  
wherein said data area further has menu information for  
choosing said first data arrangement recorded therein.

101. A recording apparatus comprising:  
means for creating not only a first data  
arrangement containing a plurality of video data cells



in each of which video data has been stored, but also first management information table that is for managing said first data arrangement and includes first cell playback information specifying the playback order of video data cells in said first data arrangement and first content information on the contents of said first data arrangement; and

means for recording not only the first management information table in a first segment area of the data area on a recording medium, but also the first data arrangement in a second segment area different from the first segment area of the data area on the recording medium.

102. A recording apparatus according to claim 101, wherein: said creating means creates not only a second data arrangement containing a plurality of cells in each of which video data has been stored, but also second management information that is for managing said second data arrangement and includes second cell playback information specifying the playback order of video data cells in said second data arrangement and second content information on the contents of said second data arrangement; and said recording means records not only the second management information along with the first management information table in the first segment area of the data area on the recording medium, but also the second data arrangement

along with the first data arrangement in the second segment area different from the first segment area of the data area on the recording medium.

103. A recording apparatus according to claim 102, wherein said first and second content informations include the presence or absence of data arrangements to which said first and second data arrangements are to be concatenated as well as the numbers of data arrangements at concatenating destinations.

104. A recording apparatus according to claim 102, wherein: said creating means creates not only a third data arrangement containing a plurality of cells in each of which video data has been stored, but also third management information that is for managing said third data arrangement and includes third cell playback information specifying the playback order of video data cells in said third data arrangement and third content information on the contents of said second data arrangement; said recording means records not only the third management information along with the first and second management informations in the first segment area of the data area on the recording medium, but also the third data arrangement along with the first and second data arrangements in the second segment area different from the first segment area of the data area on the recording medium.

105. A recording apparatus according to claim 104,

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5 wherein said first, second, and third content informations include the presence or absence of data arrangements to which said first and second data arrangements are to be concatenated as well as the numbers of data arrangements at concatenating destinations.

106. A recording apparatus according to claim 101, wherein said first content information includes entry information as to whether or not said first data arrangement is to be reproduced first.

107. A recording apparatus according to claim 101, wherein said first content information includes the number of cell data items in said first data arrangement.

108. A recording apparatus according to claim 101, wherein said video data cells include video data packs for reproducing images, audio data packs for reproducing audio, and sub-picture data packs for reproducing sub-pictures, the audio data packs containing one or more audio streams that are identified by audio stream numbers and can be reproduced selectively, and the sub-picture data packs containing sub-picture streams that are identified by sub-picture stream numbers and can be reproduced selectively.

109. A recording apparatus according to claim 101, wherein said first content information includes

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114. A recording apparatus according to claim 101,  
wherein said postcommand information includes a command

to change the processing according to an externally supplied input in the course of reproducing the corresponding first data arrangement.

115. A recording apparatus according to claim 101, wherein said first management information table includes intercell command information in which a command process related to the playback has been written in the course of reproducing the corresponding first data arrangement, and said first cell playback information contains information that is written in the intercell command information after the completion of reproduction of a particular data cell and specifies a command process to be executed.

116. A recording apparatus according to claim 101, wherein said video data cells include video data packs for reproducing images, audio data packs for reproducing audio, and sub-picture data packs for reproducing sub-pictures, and items that the user can choose are reproduced from the sub-picture data packs.

117. A recording apparatus according to claim 101, wherein said first cell playback information includes the start address of the first data cell in said first data arrangement in said data area.

118. A recording apparatus according to claim 101, wherein said first cell playback information includes the start address of the last data cell in said first data arrangement in said data area.

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122. A communication system according to claim 121, wherein: said creating means creates not only a second data arrangement containing a plurality of cells in each of which video data has been stored, but also second management information that is for managing said

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130. A communication system according to claim 121,  
wherein said first content information includes the  
presence or absence of repetitive playback of the  
corresponding first data arrangement as well as the  
5 number of playbacks to be repeated.

132. A communication system according to claim 121,  
15 wherein said first management information table  
includes precommand information in which the processing  
related to the playback has been written before the  
playback of the corresponding first data arrangement.

25           134. A communication system according to claim 121,  
wherein said postcommand information includes a command  
to change the processing according to an externally

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139. A communication system according to claim 121,

wherein said transferring means transfers search information for searching for the first management information table before transferring the first management information table.

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140. A communication system according to claim 121, wherein said transferring means first transfers menu information for choosing said first data arrangement.

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